

# TONG YUZHOU

Nanyang Technological University  
[ytong004@e.ntu.edu.sg](mailto:ytong004@e.ntu.edu.sg)

## EDUCATION

### Nanyang Technological University

Singapore

**Supervisor:** Prof. Lin Zhiping

Master of Science in Communications Engineering

Dec 2023 – Aug 2022

Cumulative GPA: 4.42/5.00

### The Chinese University of Hong Kong, Shenzhen

Shenzhen, China

Bachelor of Engineering in Electronic Information Engineering

Sep 2018 – June 2022

Cumulative GPA: 3.25/4.00, Major GPA: 3.40/4.00

## PUBLICATIONS

\* indicates equal contribution

### [ICCC 2023] Rate Adaptation with Correlated Multi-Armed Bandits in 802.11 Systems

**Yuzhou Tong\***, Jiakun Fan\*, Xuhong Cai, Yi Chen

*the 12th IEEE/CIC International Conference on Communications in China*

### [ICIEA 2023] Encrypted Mobile Traffic Classification with a Few-shot Incremental Learning Approach

Yongming Chen\*, **Yuzhou Tong\***, Gwee Bah Hwee, Qi Cao, Sirajudeen Gulam Razul, Zhiping Lin

*the 18th IEEE Conference on Industrial Electronics and Applications*

### [ISCAS 2023] Real-time Traffic Monitor in Encrypted Wireless Communication Network

Yongming Chen, **Yuzhou Tong**, Gwee Bah Hwee, Qi Cao, Sirajudeen Gulam Razul, Zhiping Lin

*the 12th IEEE/CIC International Conference on Communications in China*

## PREPRINTS

### A Method for Out-of-Distribution Detection in Encrypted Mobile Traffic Classification

**Yuzhou Tong\***, Yongming Chen, Gwee Bah Hwee, Qi Cao, Sirajudeen Gulam Razul, Zhiping Lin

*Submitted to the 49th Annual Conference of the IEEE Industrial Electronics Society (IECON 2023)*

## RESEARCH EXPERIENCE

### Research assistant in Communication Research Lab, NTU

Aug 2022 – Aug 2023

Human Activity Classification with Cellular Base-station Traffic, supervised by Prof. Lin Zhiping

- Used Universal Software Radio Peripheral (USRP) and the packet analysis software, Aircscope and Wireshark to collect Downlink Control Information (DCI). Wrote Python scripts to process the raw data to a data set.
- Proposed an incremental learning framework using rehearsal and knowledge distillation techniques with the Long Short-Term Memory (LSTM) network for traffic classification.
- Proposed an out-of-distribution detection scheme for mobile encrypted traffic classification based on principal component analysis (PCA) in combination with an LSTM network.

### Research Assistant in Singapore-ETH Center Future Resilient Systems, NUS

Feb 2023 – June 2023

Dynamic Mobile Sensing Platform (DMSP) Development, supervised by Prof. Eleni Chatzi

- Designed the architecture of the DMSP, and selected software, devices, and techniques to implement the functionalities of the platform.
- Developed the data collection functionality using a Raspberry Pi 4B equipped with the MPU-6050 acceleration sensor and the L76X GPS hat. Wrote Python scripts to control the devices and process the collected data.
- Developed the data transmission functionality using the SIM7080 NB-IoT module for network access and the MQTT protocol for data transmission, so that the device can work in outdoor environments and transmit data through the LTE network.
- Developed the data visualization dashboard using the visualization platform, Grafana with the open-source monitoring system Prometheus, and the metrics exporter software, Telegraf to monitor the real-time status of the pavement facilities.

Rate Adaptation with Correlated Multi-Armed Bandits in 802.11 Systems, supervised by Prof. Chen Yi

- Formulated the physical rate adaptation problem in the Wi-Fi system as a multi-armed bandit (MAB) problem and proposed a rate adaptation algorithm using a correlated MAB model to enhance the efficiency of rate adaptation.
- Formulated the rate adaptation problem as a Markov Decision Problem (MDP) and proposed a Q-learning based method to enhance the throughput of the system.
- Implemented the rate adaptation algorithm in the mac80211 module and built the test bed using a Raspberry Pi 4B and a Dongtintech AIMB-B2205A industrial computer to validate the proposed algorithms.

#### SELECTED AWARDS AND HONORS

---

- |  |           |
|--|-----------|
| • Dean's List (Top 15%), School of Science and Engineering, CUHK(SZ) | 2019-2020 |
|--|-----------|

#### CONTRIBUTED PRESENTATIONS

---

- |   |           |
|---|-----------|
| • Rate Adaptation with Correlated Multi-Armed Bandits in 802.11 Systems<br>ICCC 2023 Poster Presentation                | July 2023 |
| • Encrypted Mobile Traffic Classification with a Few-shot Incremental Learning Approach<br>ICIEA 2023 Oral Presentation | Aug 2023  |